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OMMITTEE OF EXPERTS ON THE TRANSPORT
F DANGEROUS GOODS

b-Committee of Experts on the
ansport of Dangerous Goods

# REPORT OF THE SUB-COMMITTEE OF EXPERTS ON ITS EIGHTEENTH SESSION

**(Geneva, 3-12 July 2000)**

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# REPORT

## ATTENDANCE

1. The Sub-Committee of Experts on the Transport of Dangerous Goods held its eighteenth session from 3 to 12 July 2000 with Mr. S. Benassai (Italy) as Chairman and Mr. F. Wybenga (United States of America) as Vice-Chairman.

2. Experts from the following countries took part in the session: Australia; Belgium; Brazil; Canada; China; Czech Republic; France; Germany; Italy; Japan; Mexico; Morroco, Netherlands; Norway; Poland; Russian Federation; South Africa; Spain; Sweden; United Kingdom; United States of America.

3. Under rule 72 of the rules of procedure of the Economic and Social Council, observers from the following countries also took part: Austria; Bahamas; Finland; Islamic Republic of Iran, Switzerland; Tunisia.

4. Representatives of the following specialized agencies were present: International Civil Aviation Organization (ICAO); International Maritime Organization (IMO) and World Health Organization (WHO) and International Atomic Energy Agency (IAEA).

5. The following intergovernmental organizations were represented: European Commission; Intergovernmental Organization for International Carriage by Rail (OTIF) and Organization for Economic Co-operation and Development (OECD).

6. Representatives of the following non-governmental organizations took part in the discussion of items of concern to their organizations: European Liquefied Petroleum Gas Association (AEGPL); International Association of the Soap, Detergent and Maintenance Products Industry (AISE); European Committee of Paint, Printing Ink Artists Colours Manufacturer's Associations (CEPE); Compressed Gas Association (CGA); European Association of Automotive Suppliers (CLEPA); Standing Committee of European Doctors (CP); Chemical Specialities Manufacturers Association (CSMA); European Bio-Safety Association (EBSA); European Cylinder Makers Association (ECMA); European Fertilizer Manufacturers' Association (EFMA); European Industrial Gases Association (EIGA); Federation of European Aerosol Associations (FEA); International Federation of Freight Forwarders Associations (FIATA); Hazardous Materials Advisory Council (HMAC); International Air Transport Association (IATA); International Council of Chemical Associations (ICCA); International Confederation of Container reconditioners (ICCR); International Confederation of Drums Manufacturers (ICDM); International Confederation of Plastics Packaging Manufacturers (ICPP); International Council of Intermediate Bulk Container Associations (ICIBCA); International Electrotechnical Commission (IEC); International Road Transport Union (IRU); International Organization for Standardization (ISO) and International Union of Railways (UIC).

**ADOPTION OF THE AGENDA**

Documents: (ST/SG/AC.10/C.3/35 and Add.1 and 2)

7. The Sub-Committee adopted the provisional agenda prepared by the secretariat after amending it to include late submissions (see informal documents INF.1 and INF.2).

8. The Sub-Committee noted that documents ST/SG/AC.10/C.3/2000/17, -/20, -/26 and -/35, listed in the agenda, had not finally been issued since their authors had failed to submit them in time.

9. The Sub-Committee agreed to entrust consideration of the documents listed under agenda item 3 (a) to the Working Group on Gas Receptacles and Multiple Element Gas Containers (MEGCs) in the case of document ST/SG/AC.10/C.3/2000/37 (Italy), and to an ad hoc Working Group in the case of documents ST/SG/AC.10/C.3/2000/5 (IMO), INF.10 (CEFIC), INF.34 (Secretariat) and INF.52 (ICAO).

**DEVELOPMENT OF PROVISIONS FOR THE TRANSPORT OF GASES**

Documents: ST/SG/AC.10/C.3/34 and annex
ST/SG/AC.10/C.3/34/Add.1 (Report of the in-session Working Group held during the seventeenth session of the Sub-Committee)
ST/SG/AC.10/C.3/2000/31 (Canada)
ST/SG/AC.10/C.3/2000/38 (AEGPL)
ST/SG/AC.10/C.3/2000/51 (United States of America)

Informal documents: INF.13 (EIGA)
INF.30 (Germany)
INF.35 and INF.44 (ISO)
INF.36 (United Kingdom)
INF.37, INF.38, INF.45 and Corr.1 (AEGPL)

10. Following the introduction of the documents by their authors, the Sub-Committee agreed to entrust their detailed consideration to the Working Group on Gas Receptacles and Multiple Element Gas Containers (MEGCs).

11. Several delegations noted that many ISO standards were still at the draft stage and therefore thought that it might be premature to carry on the work on gas receptacles during the present biennium. The expert from the United States of America considered that these provisions should be accompanied by provisions concerning quality assurance.

12. Other delegations on the contrary held the view that consideration of the provisions relating to gas receptacles could not be constantly postponed and that the result of the work done to date should appear in the Model Regulations, even if these provisions were neither perfect nor complete, on the understanding that they could be improved subsequently. The expert from the United Kingdom considered that it was inappropriate to mix problems relating to the mutual acceptance of certification and approval methods for gas receptacles with questions of the safety level required.

13. The Working Group was asked to consider concentrating its efforts initially on MECGs before going on to consider the provisions concerning gas receptacles.

**Report of the Working Group**

Informal document: INF.68

14. The Sub-Committee took note of the report of the Working Group (see annex 1) and welcomed the progress achieved.

15. The expert from Belgium noted that, according to paragraph 43 of the report, some of the provisions appeared to be provisional and that the work would be continuing during the next biennium. He wondered how this should be interpreted by the organizations and Governments implementing the Model Regulations.

16. The Sub-Committee noted that there would be further consultations among experts before the session of the Committee and that it would be necessary to await the session in order for it to be possible to ascertain the effective status of the provisions which would be included in the Model Regulations.

17. The Sub-Committee adopted the proposals of documents ST/SG/AC.10/C.3/2000/37 and INF.30 in accordance with the Working Group's recommendation (see annex 1, paras. 40 and 41 and annex 2).

## TRANSPORT IN BULK IN PORTABLE TANKS AND FREIGHT CONTAINERS

**New provisions for the transport of solid substances in tanks**

Document: ST/SG/AC.10/C.3/2000/47 (Germany)

18. The Sub-Committee noted that the list of elevated temperature substances carried in the molten state contained in the document by Germany was presented as an example, in accordance with the request made at the previous session, and was not exhaustive.

19. The Sub-Committee confirmed the draft amendments to Chapter 6.7 adopted at the previous session (see ST/SG/AC.10/C.3/34/Add.2) and decided to remove the square brackets in 6.7.2.1 and round "IP56" in 6.7.2.5.15.

**New provisions for the transport of solid substances in bulk in freight containers**

Document: ST/SG/AC.10/C.3/2000/29 (Germany)

Informal documents: INF.3 and INF.14 (Germany)

20. The expert from Germany presented the report (INF.14) of an informal Working Group which had met in Bonn from 5 to 7 April 2000, at the invitation of his Government. Several

delegations made detailed comments on this report and the proposal in ST/SG/AC.10/C.3/2000/29.

21. The expert from Germany was requested to prepare a new text which would take these comments into account.

22. The Sub-Committee moreover confirmed that the provisions should cover all types of bulk containers intended for the transport of solid substances in bulk, and should not be restricted to certain types of containers.

**TRANSPORT OF DANGEROUS GOODS DOCUMENTATION**

Documents: ST/SG/AC.10/C.3/1999/58 and -/Add.1 (United States of America)
ST/SG/AC.10/C.3/1999/69 (CEPE)
ST/SG/AC.10/C.3/2000/6 (Belgium)
ST/SG/AC.10/C.3/2000/11 (Belgium and Netherlands)
ST/SG/AC.10/C.3/2000/5 (IMO)
ST/SG/AC.10/1998/6 (India)

Informal document: INF.54 (CEFIC)

23. In the absence of the expert from India, document ST/SG/AC.10/1998/6 was not discussed.

24. The Sub-Committee carried out a second reading of the texts adopted at the previous session (see ST/SG/AC.10/C.3/34, annex 3); the amendments adopted can be found in annex 2.

25. Several experts supported the proposal by Belgium that provision should be made for two acceptable alternative sequences of information in the transport document (paragraph 5.4.1.4.2), one corresponding to the present conditions of the Model Regulations (proper shipping name, class, subsidiary risk, UN number and packing group), and the other applying to transport by land in Europe (UN number, proper shipping name, class, etc.).

26. The representatives of ICCA, AISE and FIATA said that the proposal was a good compromise for industry, but that it would only be acceptable if it was effectively implemented for all transport modes.

27. The representative of ICAO said that for transport by air a single accepted sequence would be preferable.

28. Several experts also considered that a single sequence would be preferable.

29. A vote was taken on the proposal by Belgium, but the proposal was not adopted since the votes were equally divided.

30. The expert from Belgium then asked for the discussion to be reopened and for the decision taken at the previous session to keep to the present sequence to be overruled. He proposed that the sequence should begin with the UN number followed by the proper shipping name. Since his proposal was supported by the experts from Australia and France, a vote was taken and the proposal was adopted by a large majority (see annex 2).

31. The Sub-Committee decided to delete paragraphs 5.4.1.5.6.2 and 5.4.1.5.6.3, since some experts considered that they did not concern transport safety. The expert from Belgium entered a reservation concerning the deletion of 5.4.1.5.6.3 for this reason.

32. The Sub-Committee confirmed paragraph 5.4.1.5.6.1 although it noted that this paragraph was not required in RID/ADR where the provisions of Chapter 5.5 concerning infectious substances would only apply to risk groups 3 and 4.

33. In 5.4.1.6, the Sub-Committee noted that the requirement of a declaration signed by the consignor had been deleted in RID and ADR, because the obligations of each participant in road and rail transport operations had been clearly established elsewhere. The Sub-Committee decided, however, to keep this requirement in the Model Regulations.

34. The experts from Belgium and the Netherlands proposed in document ST/SG/AC.10/C.3/2000/11 that the requirement of a container packing certificate - currently applicable only to containers - should be extended to vehicles, but that this requirement should be restricted to maritime transport and to transport by land preceding a voyage by sea. They also proposed that the text should be brought into line with that of the IMDG Code.

35. Although several experts would have liked the requirement for this certificate to exist whatever the transport mode, the Sub-Committee adopted the proposal, subject to drafting amendments (see annex 2). The proposed paragraph (d) was deleted, since in some cases drums should be carried on their sides rather than in an upright position and the administrations did not wish to have to issue special authorizations each time the case arose.

36. Where informal document INF.54 was concerned, the Sub-Committee regretted that it had not been submitted in time as a formal proposal. ICCA had been invited to collate the remarks of the experts and prepare a new document bearing in mind that the time the Committee could spend on its consideration would be very limited.

## MISCELLANEOUS DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

### Listing and classification

***Airbags***

Documents: ST/SG/AC.10/C.3/1999/94 (Germany)
ST/SG/AC.10/C.3/2000/12 (Germany, Norway, Sweden and United Kingdom)

Informal documents: INF.33 (United States of America)
INF.41 (France)

37. Opinions were divided on the real need to call in question the provisions of the present Model Regulations. The Sub-Committee agreed to classify airbag inflators, airbag modules and seat-belt pre-tensioners in Classes 1 or 9 only (i.e. to delete the present entry (UN 3353) from Class 2), but an ad hoc Working Group was established to study in detail the joint proposal by Germany, Norway, Sweden and the United Kingdom.

Document: ST/SG/AC.10/C.3/2000/16 (United Kingdom)

Informal document: INF.6 (United States of America)

38. The United Kingdom's proposals were adopted with some amendments (see annex 2).

39. The expert from Germany stated that in his opinion, the OECD IGUS Working Group should reconsider the classification of water-wetted and phlegmatized explosives specially with regard to packing groups.

***Calcium hypochlorite, hydrated, with more than 10% water***

Document: ST/SG/AC.10/C.3/2000/22 (Japan)

40. The expert from Germany said that the stability of calcium hypochlorite, hydrated, with more than 10% water depended on the impurities it contained, the water content and manufacturing processes. Since a full study of the hazard characteristics of these products was in progress in his country, he proposed that consideration of this proposal should be postponed pending the availability of the data.

41. The Sub-Committee, noting that these products were carried internationally and that they had been involved in accidents in maritime transport, decided, however, to follow up Japan's proposal immediately, but also to amend the description of current entry 2880 by raising the upper limit of the water content from 10 to 16% rather than create a new entry (see annex 2).

***Corrosion criteria for substances of Class 8, Packing Group II, in the case of steel and aluminium***

Document: ST/SG/AC.10/C.3/2000/24 (Germany)

42. Several experts shared the opinion of the expert from Germany that it would be preferable to review the corrosion criteria for metals, particularly as the materials referenced in the present criteria were little known and very difficult to obtain.

43. Some experts would have liked a reference to a known standard, but since none existed at the present time others considered it preferable that the Sub-Committee should undertake to develop an appropriate method. Several delegations declared their willingness to exchange information on the subject.

44. It was decided to keep the document on the Committee's agenda and it was recalled that it would also be necessary to work in the context of the overall harmonization of the systems for the classification and labelling of chemical products.

***Alkali-manganese and zinc-carbon cells; nickel-metal hydride and nickel-cadmium storage batteries; button cells***

Document: ST/SG/AC.10/C.3/2000/25 and -/Corr.1 (Germany)

45. The proposal by Germany to exempt certain cells and storage batteries covered by UN No. 3028 subject to certain precautions during carriage was adopted with some drafting amendments (see annex 2).

***2-Methylbutyraldehyde***

Document: ST/SG/AC.10/C.3/2000/27 and -/Add.1 (Germany)

46. The proposal for a new entry in Class 3 was adopted (see annex 2).

***Chlorosilanes***

Document: ST/SG/AC.1/C.3/2000/30 (CEFIC)

47. The proposal to delete the two generic entries 3361 and 3362 adopted at the sixteenth session for toxic corrosive cholorosilanes in Class 6.1, on the grounds that similar products were classified by name in Class 8, was not adopted.

***Fumigated units***

Document: ST/SG/AC.10/C.3/2000/42 (United States of America)

48 The proposal concerning fumigated units was adopted with amendments (see annex 2).

***Transport of PCBs***

Document: ST/SG/AC.10/C.3/2000/43 (United States of America)

49. The proposal to exempt PCBs in concentrations of not more than 50 mg/kg was adopted and extended to UN Nos. 3151 and 3152 (see annex 2). The proposal to exempt packages containing less than 100 ml of PCBs was not adopted.

***Ammonium nitrate entries***

Documents: ST/SG/AC.10/C.3/2000/36 (Netherlands)
ST/SG/AC.10/C.3/2000/45 (United States of America)

Informal document: INF.50 (Germany)

50. The joint proposal by the United States of America, Canada and EFMA was adopted (see annex 2).

51. The suggestion by the expert from the Netherlands that more stringent test methods should be devised for the classification of ammonium nitrate-based fertilizers when they were carried in bulk in containers, vehicles or seagoing or inland navigation vessels, or when they were stored in large quantities was also acknowledged by the Sub-Committee. The expert from the Netherlands stated that he would present a proposal for such tests in the future.

***Precedence of hazard characteristics (Division 4.3 and Class 3)***

Document: ST/SG/AC.10/C.3/2000/44 (United States of America)

52. The proposal to revise the precedence of hazard table in order to determine an order of precedence between Class 3 and Division 4.3 was adopted.

53. The representative of the United Kingdom proposed, however, that the order of precedence proposed by the United States of America should be modified, so as only to give precedence to Class 3 in the case of substances presenting simultaneously the hazards of Class 3, Packing Group I and Division 4.3, Packing Groups II and III, or the hazards of Class 3, Packing Group II and of Division 4.3, Packing Group III.

54. The expert from Germany considered that the hazard of Division 4.3 should always take precedence over that of Class 3, whatever the respective packing groups; the Sub-Committee finally decided to adopt this approach (see annex 2).

55. In accordance with paragraph 3 (b) of his proposal, the expert from the United States of America was invited to submit a proposal amending paragraph 2.0.3.1 so as to include the manner of determining the precedence of hazard and the subsidiary risk labels to be used in the case of more than two hazards.

***Ethylene glycol diethyl ether (UN No. 1153)***

Document: ST/SG/AC.10/C.3/2000/48 (Germany)

Informal document: INF.25 (Germany)

56. The proposal by Germany was adopted and the Sub-Committee decided to add an additional line to the table in Chapter 3.2 for the substances of UN No. 1153 which met the criteria for Packing Group II (see annex 2).

***Organometallic compound, water-reactive, flammable, solid***

Document: ST/SG/AC.10/C.3/2000/50 (France)

Informal document: INF.29 (France)

57. The proposal to add a new n.o.s. entry for these compounds was adopted with some amendments (see annex 2).

***Airbags***

Informal document: INF.60 (Germany)

58. The Sub-Committee adopted the texts prepared by the ad hoc Working Group with some amendments (see annex 2).

59. The term "gas generators for seat belts" was added to entries 0503 and 3268 and to special provisions 235 and 280, as proposed orally by the expert from Japan, but was left in square brackets. The expert from Japan was asked to furnish more information on these articles for the session of the Committee.

**Chapter 3.4 (Limited quantities)**

Documents: ST/SG/AC.10/C.3/2000/9 (Australia)
ST/SG/AC.10/C.3/2000/32 (Germany and Sweden)

Informal documents: INF.39 (Norway)
INF.40 (CTIF)

60. Several experts supported the proposals by Australia, Germany and Sweden to regulate still further the carriage of dangerous goods in limited quantities, particularly as regards the placarding of transport units carrying more than a certain quantity. They recalled that these goods were sometimes carried in large quantities in full loads with limited safety controls. Although they agreed that the risk was minimized by the fact that the load was split into a large number of small packages which were themselves packed in outer packagings, they considered that the intrinsic hazard remained, particularly in the event of fire in the load as a whole and that it could not be ignored and must be capable of being identified by appropriate placarding of vehicles,

in order, for example, to ensure appropriate regulations for vehicle traffic in particular locations such as tunnels.

61. Other experts and representatives of industry considered that there was no need to amend the provisions of Chapter 3.4. They pointed out that with the exception of a few rare incidents, considerable quantities of dangerous goods packed in small quantities had been carried by all transport modes in perfect safety for more than 30 years under the present conditions of exemption or even less stringent conditions. They deplored the fact that proposals of this nature to make the regulations more stringent could be based on mere presumptions, without considering the additional costs for industry or the practical consequences in terms of logistics.

62. The expert from the United Kingdom proposed that limited quantities, consumer commodities and exempted quantities should be the subject of a fundamental review over the next biennium.

63. Other experts considered that these problems could not be resolved by the Sub-Committee, and that it would be preferable to tackle them separately for each transport mode and at the regional level.

64. After a lengthy discussion, the expert from Australia proposed that the Sub-Committee should take a decision on a number of questions of principle, namely:

(a) whether the placarding of transport units for dangerous goods in limited quantities was necessary;

(b) if so, whether units should be placarded once a certain quantity was exceeded;

(c) whether it should only concern certain classes of dangerous goods;

(d) whether the provisions for documentation should be revised.

65. The expert from the United Kingdom said that he did not believe that he could take a decision on these questions of principle at the present session since these questions of principle were not clear enough and did not consider fully the downstream consequences; he asked that the discussion should be adjourned and postponed until the session of the Committee so that the necessary consultations could be effected. The expert from the United States of America joined in with this request.

66. The Chairman reminded the meeting that the issue appeared in the Sub-Committee's programme of work for the present biennium and that official documents had been submitted in time. In accordance with article 50 of the rules of procedure, he asked the Sub-Committee to take a decision on the request for an adjournment. Following a vote, the request was rejected.

67. The Chairman said that, in view of the discussion and the documents submitted, the Sub-Committee could not take a decision on the question of the documentation, and he invited the

experts concerned to submit written proposals in this regard. He then put the first three questions of principle to the vote.

68. The Sub-Committee decided that transport units carrying dangerous goods in limited quantities should carry appropriate placards, whatever the dangerous goods carried, but that these placards could only be required once a certain quantity was exceeded.

69. The experts concerned were requested to prepare suitable proposals for defining the appropriate placards and the minimum quantity of goods after which the placards should be used.

70. The Chairman clarified that discussion of these proposals could not lead to further discussion of the principles.

**Lithium batteries**

Informal documents: INF.4 (Report of the Lithium Battery Working Group, Ottawa, 13 to 25 March 2000)
INF.49 (United States of America)
INF.56 (Japan)

71. The Sub-Committee noted that the report of the Working Group was an interim report and that there was general agreement on the new test procedures, but that some disagreement remained on the choice of tests required in the context of the regulation of transport and where exemptions were concerned.

72. The expert from the United Kingdom noted that in his view test procedures 7 and 8 should also have appeared in square brackets. Several experts supported this proposal.

73. The expert from Germany stated that in his opinion the exemption provisions for lithium batteries given in special provision 188 should be kept.

74. The expert from the United States of America said that a new version of annex 1 to document INF.4 would be submitted to the Committee at its next session. He was also of the opinion that even if the work on lithium batteries might possibly continue into the next biennium, the Committee should apply test requirements to all lithium cells and batteries whatever their size as from next December.

75. The expert from France stressed that the work on lithium batteries had been in progress for a long time and that industry was awaiting the results with impatience. He hoped, for the Committee's image, that the work could be concluded during the present biennium. He considered that industrialists should prepare battery design types in terms of test requirements, and that if subsequent work involved modifications of tests, they should then completely overhaul the design types.

76. The expert from the United States of America requested that document INF.49 should become an official document for the Committee.

77. The Chairman asked the expert from Japan to submit document INF.56 to ICAO, since the exemption of batteries in equipment such as mobile phones and computers or of replacement batteries carried by air passengers concerned air transport regulations, unless the document was revised to take all transport modes into account.

**Infectious substances**

Document: ST/SG/AC.10/C.3/2000/15 (Germany, United Kingdom)

Informal documents: INF.18 (HMAC)
INF.23 (United States of America)

78. The Sub-Committee noted that the proposal by Germany and the United Kingdom had been prepared in consultation with WHO in order to respond to the practical difficulties encountered by the medical profession in complying with regulations for the transport of infectious substances.

79. The representative of EBSA said that his organization intended to formulate new proposals to simplify the regulations.

80. The representative of WHO confirmed that a meeting of WHO's "Biosafety Advisory Group" would be held from 12 to 15 October 2000 to study the question.

81. The expert from Germany, supported by the expert from Canada, therefore proposed that the discussion should be deferred until the session of the Committee. The Chairman said that the Committee's main task was to consider the conclusions of the Sub-Committee and that there would be no time during the December session for discussions of this nature. He therefore put the outstanding proposals to the vote.

82. The proposal by the United States of America (INF.23) to increase limits for the contents of P650 method packagings, proposed by the United Kingdom and Germany, in order to correspond to the limits accepted for air transport, was adopted.

83. The proposal by the United States of America to delete in instruction P650 the reference to specific materials and replace by requiring packages to be capable of meeting tests by reference to other parts of the Model Regulations was also adopted. The expert from the United Kingdom regretted this decision since it forced the medical profession to familiarize themselves with other parts of the Model Regulations and to assess for themselves whether prepared packages were capable of withstanding a drop test.

84. The expert from Germany stated that packagings with small amounts as proposed in ST/SG/AC.10/C.3/2000/15 should not be subject to a drop test and he offered to come back on this issue with a new proposal.

85. The proposal by the United Kingdom and Germany, as amended, was adopted in full.

**Packagings**

***Paper bag markings***

Document: ST/SG/AC.10/C.3/2000/1 (China)

86. In order to respond to the practical problem raised by the expert from China, the Sub-Committee decided to amend paragraph 6.1.4.18.1 to the effect that the marking 5M1 could also apply to three-ply paper bags where the middle ply was made of net-cloth which had been pre-stressed and super-heated and glued to the two outer plies of paper (see annex 2).

***Leakproofness test of closures for liquids***

Document: ST/SG/AC.10/C.3/2000/2 (China)

Informal documents: INF.11 (ICDM)
INF.26 (SEFEL)
INF.55 (China)

87. Since the proposal referred to the IMDG Code, RID and ADR for requirements for damp-proof packages for the carriage of solid substances, the expert from China was asked to consult the representative of IMO for a clearer indication of what those requirements were and what substances were referred to.

***Remanufacture, repair and routine maintenance of intermediate bulk containers (IBCs)***

Documents: ST/SG/AC.10/C.3/2000/14 (CEFIC, ICCR, ICIBCA and ICCP)

Informal document: INF.19 (United Kingdom)

88. This document, prepared by a Working Group which met at Bad Homburg (Germany) on 13 and 14 March 2000, was a follow-up to the discussion of the previous session (see ST/SG/AC.10/C.3/34, para. 95).

89. After a long discussion on the proposals, an ad hoc Working Group was established to review them in terms of the comments made and submitted revised texts (INF.66).

90. In introducing the new texts, the representative of ICPP said that the ad hoc Working Group had not taken into account the verbal proposal by the expert from the Netherlands that provisions should be introduced concerning a quality assurance programme, since it would not be realistic to request the competent authorities to monitor the quality assurance programmes of the large numbers of IBC owners liable to carry out repairs.

91. The new proposals were adopted with some further amendments (see annex 2).

92. The expert from Belgium, who had reservations about some parts of the proposal, said that he would submit a new proposal for the Committee's session.

***Packagings for ethylene oxide (UN No. 1040)***

Document: ST/SG/AC.10/C.3/2000/41 (United States of America)

Informal document: INF.24 (United States of America)

93. The Sub-Committee noted that the original proposal was a result of an addition to a special provision PP79 in packing instruction P200 in the IMDG Code. Several experts noted, however, that in the revised proposal (INF.24) the expert from the United States of America had departed from the texts approved by the IMDG Code, particularly with reference to maximum quantities and the obligation to test the outer packaging to the required level for Packing Group I.

94. The proposal by the United States of America was adopted (see annex 2).

***Packaging requirements***

Document: ST/SG/AC.10/C.3/2000/39 (United States of America)

Informal documents: INF.48 (United States of America)
INF.27 (SEFEL)

95. The proposal that the manufacturers of packagings, IBCs and large packagings should furnish users with guidance on how to close them correctly and on the accessories to be used for this purpose was adopted (see annex 2).

96. The expert from the United Kingdom suggested that, since there was no requirement in the Model Regulations for a test report to packagings for infectious substances (Chapter 6.3), this should also be addressed. He was invited to submit a proposal if he considered it necessary.

***Rescinding the stacking test for flexible IBCs and large packagings in flexible material***

Document: ST/SG/AC.10/C.3/2000/52 (China)

97. It was noted that the importance of the stacking test depended on the design type of the flexible IBC and that it might be possible to omit it in the case of IBCs made of a single piece of material with a sewn base, but the Sub-Committee was not in favour, generally speaking, of rescinding this test for other flexible IBCs and for large packagings that could contain articles or inner packagings. It was also pointed out that the packaging manufacturers themselves had made provision for a stacking test in accordance with the standards for IBCs intended for non-dangerous goods.

98. The Chairman said that if the expert from China wished to follow up his proposal, he should make provision for differentiating between types of flexible IBCs depending on their manufacture.

***Packing instructions P601, P401 and P402***

Document: ST/SG/AC.10/C.3/2000/18 (France)

99. The proposals to add requirements for a leakproofness test and markings for combination packagings of instruction P601 and to delete drums (1A1) from instruction P401 were adopted.

100. Since UN Nos. 1411 and 1928 were carried in drums, it was decided to keep instruction P402 for these entries. The expert from France would make further proposals for the allocation of the amended instruction P401, and particularly for n.o.s. entries 3129 and 3130.

***IBCs for substances liable to become liquid during transport***

Document: ST/SG/AC.10/C.3/2000/19 (United Kingdom)

101. The proposal to delete in section 4.1.3.4 the references to 31HZ2 IBCs (introduced at the proposal of Belgium at the previous session, see ST/SG/AC.10/C.3/34, para. 92) was adopted, since these IBCs were intended for the carriage of liquids. This reference should also be deleted from the additional provision of instruction IBC 06.

***ISO/CEN standards for packagings***

Informal document: INF.5

102. The Sub-Committee noted that ISO was preparing a large number of standards concerning packagings and IBCs for dangerous goods. Draft standard ISO/DIS 16104 (Transport packaging for dangerous goods; test methods) had already been approved by ISO and the following drafts were also at an advanced stage:

- ISO/DIS 13 355 (Complete, filled transport packages and unit loads; vertical random vibration)
- ISO/DIS 16 101 (Transport packages for dangerous goods – Plastics compatibility testing)
- ISO/DIS 16 467 (Transport packages for dangerous goods – Test methods for IBCs)

103. Several experts noted that these draft standards included in full some of the requirements of Chapters 6.1 and 6.5 of the Model Regulations and that ISO should therefore ensure that these standards were amended every time the requirements of the Model Regulations were amended. Since the work was based on the tenth edition of the Model Recommendations, compatibility with the eleventh edition must already be ensured. It was also noted that the terminology was sometimes different. It would be impossible to refer to these norms in transport regulations if they did not faithfully reflect the Model Regulations.

***Special packing provisions B3 and B4***

Informal document: INF.31 (United Kingdom/United States of America)

104. The proposal to amend the special packing provisions B3 and B4 and the assignment of these special provisions was adopted (see annex 2).

**Organic peroxides/self-reactive substances**

***Peroxyacetic acid***

Document: ST/SG/AC.10/C.3/2000/10 (Finland and CEFIC)

105. The proposal to authorize the temperature-controlled carriage in tanks of peroxyacetic acid with not more than 41% peroxyacetic acid, obtained from distillation, was adopted (see annex 2).

***Diisopropyl peroxydicarbonate***

Document: ST/SG/AC.10/C.3/2000/23 (Japan)

106. The proposed entry for a new formulation was adopted (see annex 2).

***Mixtures of 2-diazo-1-naphthol-4-sulphonic acid esters and 2-diazo-1-naphthol-5-sulphonic acid esters***

Document: ST/SG/AC.10/C.3/2000/28 (Germany)

107. The Sub-Committee agreed to review the new entry added to 2.4.2.3.2.3 at its sixteenth session (see ST/SG/AC.10/C.3/32/Add.2); the amendments adopted can be found in annex 2).

***4-nitrophenylhydrazine, wetted with water***

Document: ST/SG/AC.10/C.3/2000/40 (United States of America)

108. Several experts noted that the dry substance came under Class 1 and asked why it was proposed to classify the same substance wetted with water as a self-reactive substance rather than as a desensitized explosive. They said that they would like to have more information on the properties of this substance, and particularly with reference to the risks in the event of a leak in the packaging.

109. The expert from the United States of America explained that the substance was the result of a manufacturing process which did not consist in wetting an explosive with water. He said that he would supply additional information and requested that consideration of the document should be postponed; the Sub-Committee agreed to this.

**Explosives**

Documents: ST/SG/AC.10/C.3/2000/21 (Report of the Working Group on ammonium nitrate emulsions)

Informal document : INF.47 (United States of America)

110. A Working Group met on 10 July 2000, under the chairmanship of Mr. A. Johansen (Norway) to consider the report of the informal Working Group on ammonium nitrate emulsions hosted by the Federation of European Explosives Manufacturers (FEEM) in Engene, Norway, from 4 to 8 October 1999.

111. After introduction of the report of the Working Group (INF.70) (see annex 3) by its Chairman, some experts expressed disappointment at the fact that the text previously agreed at Engene had now been significantly modified, in particular by the introduction of new tests for testing ammonium nitrate emulsions although no information on test results had been provided.

112. The Sub-Committee noted that a revised proposal would be submitted formally by the Chairman of the Working Group for the Committee session, and that information on test results would be provided.

**Miscellaneous**

***Transport of materials capable of undergoing uncontrolled polymerization – stabilization by means of temperature control***

Informal document: INF.9 (United Kingdom)

113. The proposal by the United Kingdom was a follow-up to the Sub-Committee's decision to replace the term "inhibited" by "stabilized" in the proper shipping names of the English version of Chapter 3.2; the expert from the United Kingdom considered that provisions should be introduced for cases in which this stabilization was ensured by means of temperature control.

114. Of the two solutions proposed, the Sub-Committee decided to adopt the first (see annex 2).

Document: ST/SG/AC.10/C.3/2000/5 (IMO)

Informal documents: INF.10 (CEFIC)
INF.34 (Secretariat)
INF.52 (ICAO)
INF.67 (Secretariat)
INF.69 (Secretariat)

115. Consideration of these documents was entrusted to an ad hoc Working Group, chaired by the Vice-Chairman (see also para. 9).

116. The Working Group's recommendations, collected in document INF.67, were adopted, except for the following:

(a) the term "shell" was preferable to "tank" in 4.2.1.13.8;

(b) the amendments to 6.7.2.12.2.1 and 6.7.3.8.1.1 were not adopted;

(c) paragraph 4.1.9.1.6 should not be added since it was not in keeping with the IAEA Regulations; packagings for pyrophoric substances should be selected in terms of radioactivity characteristics for the Class 7 risk and according to paragraph 4.1.9.1.5 for the subsidiary risk;

d) the amendment to 5.1.3.2 was not accepted so as not to depart from the IAEA Regulations;

(e) it was not considered necessary to reproduce the text of 5.4.2.1 concerning the packing certificate on the reverse side of the framework form since box 20 already contained a reference to 5.4.2.1.

117. The expert from Belgium said that he regretted the form in which the IMO document had been discussed. It had been submitted very early, and although it did not always contain detailed explanations of the amendments proposed, the experts had had all the time they needed to obtain explanations from the IMO experts. Since other informal documents had been discussed first, the Working Group had not had time to consider all the proposals properly; he therefore requested that document ST/SG/AC.10/C.3/2000/5 should be placed on the Committee's agenda.

118. Several experts considered that in view of the large number of proposals in this document, it could not be dealt with in a plenary meeting; it was customary for such documents to be studied initially by a group. They said that the Working Group had been unable to take decisions on all the proposals because arguments had not been given. They were not in favour of the document being re-submitted to the Committee since it had already been discussed to a large extent. They hoped that IMO or the experts concerned would submit a new document with appropriate explanations.

119. A member of the secretariat proposed that a document should be prepared for the Committee with the list of IMO's proposals on which the ad hoc Working Group had not taken decisions. This proposal was accepted.

120. The Sub-Committee adopted miscellaneous amendments prepared by the ad hoc Working Group in INF.69 on the basis of the ICAO proposals in INF.52 (see annex 2).

## GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION AND LABELLING OF CHEMICALS

### General

Informal document : INF.21 (Chairman)

121. The Sub-Committee took note of the report of the Chairman on the 16th Consultation of the IOMC Co-ordination Group for the Harmonization of Chemical Classification systems, in particular of suggestions made by the Co-ordinating Group for the activities of the new Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (GHS Sub-Committee) in 2001.

122. The Sub-Committee noted that the IOMC Co-ordinating Group had wished that a letter of invitation asking for participation in the new GHS Sub-Committee should be sent promptly by the UN Secretariat to all UN Member States.

123. A member of the secretariat recalled that ECOSOC resolution 1999/65 simply invited Member States interested in participating in the GHS Sub-Committee to apply for membership at the latest by the end of 2000 so that the composition of the GHS Sub-Committee and the reconfigured Committee may be decided at the organizational session for 2001 of the Economic and Social Council. On the basis of the IOMC Co-ordinating Group request, the ECE secretariat was presently seeking the advice of the Department of Economic and Social Affairs on whether a letter drawing the attention of Ministers of Foreign Affairs of Member States to the invitation contained in resolution 1999/65 should be sent. In any case, invitations for participating at the first session of the GHS Sub-Committee would be sent by the ECE secretariat to all members of that Sub-Committee, but only once its composition has been decided by the Council.

124. Some experts expressed disappointment with this situation since they had anticipated invitations to apply for participation in the GHS Sub-Committee to be circulated earlier.

125. Members of the Sub-Committee of Experts on the Transport of Dangerous Goods and the IOMC Co-ordinating Group secretariat will be kept informed of further developments in due time.

### Health hazards and hazards to the environment

Informal documents : INF.8 (United Kingdom)
INF.63 (Germany)

126. Following the decision by the Sub-Committee at its last session (ST/SG/AC.10/C.3/34, para. 134) to adopt a text for provisions concerning classification of environmentally hazardous substances in the next revised edition of the UN Model Regulations on the Transport of Dangerous Goods, the expert from the United Kingdom had prepared a revised version of draft Chapter 2.9.

127. Several experts said that they were reluctant tc introduce that text in the next edition of the Model Regulations because the work on criteria for classification of mixtures had not yet been completed by OECD. In addition some experts would also prefer to wait for completion of the work on harmonization of hazard communication and they would prefer such provisions to be introduced only when the whole scheme for classification of substances and mixtures is available.

128. The experts from Belgium and Germany said that the question of environmentally hazardous substances in classes 1 to 8 should be reconsidered. This was questioned by the expert from the United States of America on the basis of the existing Model Regulations.

129. Some experts pointed out that the proposal of introducing criteria for classification of environmentally hazardous substances as presented, could imply that all kind of substances would have to be tested as any substances spilled in the environment has a potential to pollute the environment. In view of the high cost of the tests to be carried out several experts considered that this would be an unjustified burden for the industry, and they would prefer, at least in a first step pending progressive evaluation of pollution potential of the various substances transported, to draw up list of substances to be classified under UN Nos 3082 and 3077, as this approach had proven to be much more practicable than a criteria based approach in the case of the IMDG Code, RID and ADR. Other delegations disagreed with a list based approach and thought that classification should be based solely on criteria.

130. The representative of OECD said that although the work on mixtures had not yet been completed, the criteria agreed for pure substances would not be modified.

131. The expert from the United Kingdom said that the classification provisions of the proposed chapter 2.9 would apply to dangerous goods in packagings, IBCs and large packagings and tanks with a capacity less than 3000 litres. Other criteria would have to be proposed for carriage in bulk.

132. Other experts did not share this view; they considered that the criteria developed by OECD were based on intrinsic properties of substances and that there would be no reason not to use the same criteria for carriage in bulk, except for carriage in bulk in tank-vessels because in that case the controlled discharge of substances into the sea after tank washing had to be taken into account.

133. After long discussions on these issues, the chairman proposed to vote again on the principle of introducing new provisions for substances dangerous to the environment by reason of aquatic pollution into the next edition of the Model Regulations.

134. The Sub-Committee decided that these provisions should not be included in the next edition of the Model Regulations, and that the proposal by the United Kingdom (INF.8) and the comments by the expert from Germany (INF.63) should be deferred to the 2001 July session of the Sub-Committee. The expert from the United Kingdom requested that other delegations should submit written proposals for the remaining areas of concern they had addressed during the debate.

Informal document : INF.22 (Chairman)

135. The Sub-Committee took note of the summary report prepared by the Chairman on the 6th meeting of the OECD expert group on classification criteria for chemical mixtures.

136. The representative of OECD said that since that meeting, a new proposal concerning acute toxicity had been made by Sweden; this proposal was more complicated and did not take account of the existing UN Model Regulations formula for classification by calculation. This proposal would be discussed by teleconference and later at an OECD meeting in September.

137. Several experts regretted these new developments. They recalled that the classification system should be kept as simple as possible to allow self-classification by the industry. If the criteria were too complicated or if it implied costly test methods, the system would not be properly implemented in particular in developing countries.

138. Experts from OECD countries were invited to consult the representative of their countries at OECD to ensure cross-sectoral co-ordination of national positions on this issue.

**Physical hazards (aerosols)**

139. This sub-item was discussed by the joint ILO/UN Working Group on the Harmonization of the classification criteria for physical hazards (see annex 4).

140. As the Working Group could not conclude its discussions, the Committee will have to decide how to proceed for future work in that respect.

**Hazard communication**

Informal document : INF.20 (Chairman)

141. The Sub-Committee took note of the report of the Chairman on the 5th meeting of the ILO Working Group for the Harmonization of Chemical Hazard Communication.

142. The expert from Germany underlined that transport experts should monitor the development of the ILO work to avoid surprises. He said that some decisions that might be taken by that group could have considerable effects on the existing transport regulations system. He mentioned inter alia the fact that symbols should have the same meaning in all systems, the complications that could occur for the development of special labels for skin/eye corrosion and for metal corrosion, the fact that the environmentally hazardous substances label would not be the same as the IMO marine pollutant mark, the envisaged procedure for marking the inner and outer packagings, IBCs, tanks and containers, the development of signal words, and the fact that no label would be proposed if there is no corresponding classification criteria, the fact that a bomb symbol would be required for all explosives, etc.

143. Experts were invited to keep abreast of developments and to consult the representative of their country at ILO meetings to ensure nationally co-ordinated positions.

**OTHER BUSINESS**

**Cooperation with IAEA**

Document: ST/SG/AC.10/C.3/2000/33 (Secretariat)

Informal documents: INF.58 and 59 (IAEA)

144. The Sub-Committee took note of the inter-agency report on the incorporation of the IAEA Regulations on the Safe Transport of Radioactive Material into the regulations of other international transport safety organizations, and information supplied by the representative of IAEA on the dates of implementation approved by the various organizations and safety and administrative problems liable to arise in the event of lack of harmonization and during transitional periods, and how cooperation might develop in the future.

145. The Chairman welcomed the growing cooperation with IAEA since the inclusion of the IAEA Regulations in the United Nations Model Regulations and the results obtained in order to avoid confusion between 1 January and 31 December 2001.

146. The experts from the United States of America and the United Kingdom said that the problems likely to arise in international multimodal transport in the event of diverging or contradictory requirements in different transport modes had been overestimated by IAEA and that they regretted the decisions taken concerning dates of implementation, the former because ICAO's decision to postpone until 1 July 2001 the implementation of its Technical Instructions penalized countries which had prepared for implementation on 1 January 2001. The expert from the United Kingdom regretted the reduction of the scheduled transitional period of 18 months for the restructured RID/ADR to six months for Class 7 as this would force his administration to take steps to ensure effective implementation as from 1 January 2002 and that it would be difficult for his country to meet that deadline. He stressed that such difficulties should be avoided in the future.

147. In response to a question from the expert from Australia, a member of the secretariat said that the requirements for Class 7 included in the Model Regulations came under the mandate of IAEA and not that of the Sub-Committee, at least as far as the safety aspect of carriage was concerned. The dates of implementation were a direct matter for Governments where domestic transport operations were concerned and for international organizations involved in the administration of agreements and conventions for the international transport of dangerous goods.

148. There was therefore no reason to discuss in the Sub-Committee decisions which came under the mandates of other bodies. The basic purpose of the documents submitted by the secretariat and IAEA was to inform the Sub-Committee of the foreseeable situation of the implementation of IAEA's ST-1 Regulations and the future trend of cooperation between IAEA and the other organizations involved in the safety of the transport of radioactive material. Some experts believed that there would be a need to discuss these matters since they may have implications for other classes of dangerous goods.

**Applications for consultative status**

Informal documents: INF.43 (CLEPA)
INF.53 (EBSA)

149. The Sub-Committee granted consultative status to these two organizations, enabling them to be represented at meetings on questions relating to their sphere of activity.

## MISCELLANEOUS

150. The expert from Germany drew the attention of the Sub-Committee to the fact that a technical Working Group of the Contracting Parties to the Basel Convention on the Control of Transboundary Movements of Wastes and their Disposal was developing new criteria for classification under category H1 to H8 and H10 to H13 of the Annex III of the Basel Convention; these criteria could differ significantly from those of the Model Regulations on the Transport of Dangerous Goods and national co-ordination to ensure that these criteria are in conformity with the Globally Harmonized System would be useful.

151. The expert from Germany also drew attention to the development, by Contracting Parties to the Convention on Biodiversity, of provisions concerning packagings, labelling, documentation in relation to transport of modified living organisms.

152. For the programme of the Committee session, the Sub-Committee agreed that the Working Group on gas receptacles and MEGCs should meet again for two or three days or even one week if necessary.

153. The following documents will be placed on the agenda of the Committee session:

ST/SG/AC.10/1998/5, ST/SG/AC.10/1998/6
ST/SG/AC.10/C.3/2000/3
ST/SG/AC.10/C.3/2000/4
ST/SG/AC.10/C.3/2000/7
ST/SG/AC.10/C.3/2000/8
ST/SG/AC.10/C.3/2000/13
ST/SG/AC.10/C.3/2000/24
ST/SG/AC.10/C.3/2000/40
UN/SCETDG/18/INF.14
UN/SCETDG/18/INF.49
UN/SCETDG/18/INF.62
UN/SCETDG/18/INF.65

154. The deadline for submission of documents is 15 September 2000.

## ADOPTION OF THE REPORT

155. The Sub-Committee adopted the report on its eighteenth session and the annexes thereto.

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# Annex 1

## Report of the Working Group on Gas Receptacles and Multiple Elements Gas Containers (MEGCs)

### General

1. The Working Group on Gas Receptacles and MEGCs met from 3 July to 6 July 2000 under the chairmanship of Mr. H. Puype (EIGA). Representatives of Canada, France, Germany, Switzerland, United Kingdom, United States of America, European Commission, ISO, AEGPL, CGA, ECMA, and EIGA participated in the meeting.

2. The objective of the Working Group was to review document ST/SG/AC.10/C.3/34/Add.1 that presented the outcome of the discussions held during the second meeting of the Working Group taking into account the following documents ST/SG/AC.10/C.3/2000/31 (Canada), -/C.3/2000/37 (Italy), -/C.3/2000/38 (AEGPL) and -/C.3/2000/51 (United States of America ) and informal documents INF.13 (EIGA), INF.30 (D), INF.36 (UK), INF.37, INF.38, INF.45 and Corrigendum (AEGPL), INF. 35 and INF.44 (ISO), and papers (no numbers) from Australia, ECMA and CGA concerning receptacles for refrigerated liquefied gases.

3. Due note was taken of the instructions by the Sub-Committee to complete the work this biennium, if possible, and concentrate on completing the proposals on MEGCs first. The Working Group decided that the best way forward was to concentrate on the controversial issues first, so that sufficient time was given to them.

ISO Standards

4. Only published and dated standards would be listed. Standards which would not be published in time for this biennium were provisionally deleted. In order to keep the Model Regulations current, it was agreed to include a note that a more recently published version of the design standards could be used with the agreement of the competent authority.

5. The standards for composite gas cylinders, for cryogenic receptacles and the revised ISO standard 4706, would not be at a sufficiently advanced stage to be included this biennium, so they were provisionally deleted from the text and the relevant provisions reserved. The Working Group emphasised the need for including these standards in the Model Regulations in future. Standards whose publication was imminent in 2000 were left in square brackets and will be removed for the December session or deleted. The ISO representative agreed to urge the ISO secretariat to progress ISO 9809-3 to final vote and publication before the December session of the Committee.

6. It was agreed for the time being to delete the CEN standards on the design and construction of LPG cylinders until there had been further technical exchange between European

and North American experts, with a view to agreeing on a single standard for UN marked cylinders.

7. The notes on variable F-factor relating to the three ISO cylinder standards 9809-1, 7866 and 11120 were reworded to prevent regional limitations allowed for by the standards.

8. The status of the ISO standards was updated. Square brackets were removed from ISO 10297 and other standards which were published.

Quality Assurance

9. The representatives from the United States of America outlined their current practices of approval which involved a significant involvement of the competent authority in approval of both the inspection body and the manufacturer and his facilities. The representative of the European Commission described the processes adopted in the European Union which relied upon empowerment of the inspection body to approve the manufacture of cylinders. The Working Group agreed that the principle of traceability was paramount and that both approaches followed that principle.

10. Following discussion of the ISO Technical Report TR 14600, the Working Group agreed that it was a good compromise between North American and European practices. As such it was a good basis for introducing the necessary elements of quality assurance into the Model Regulations. Terminology will need aligning and other editorial changes are required. The expert from Canada volunteered to provide the necessary excerpts for incorporation in the final proposal in due time.

11. In the discussion of TR 14600 a modified definition of Inspection Body was agreed.

12. The expert from the United States of America sought to include wording which required the specific approval of the inspection body at each manufacturing facility. This was not accepted by the other Working Group members. They considered that careful selection and monitoring of the inspection bodies and the guaranteed traceability ensured that the facility would perform as required.

13. A further proposal from the United States of America that design type approvals should be linked to a particular manufacturing facility was also not included because it was already covered by the ISO design standards.

Marking

14. After some debate it was agreed that markings for UN certified cylinders should be split into two sections, one for ready reference for the authorities (the certification markings) and these marking would be in a specific sequence. The second section covered the other essential markings some of which are dependent on the characteristics of the gas or receptacle. Since the decision caused major concern for the ISO standard as it would require a major change in its layout of the stamp marking, it was requested that the elements of the certification string would be as limited as

possible. More particularly, it was asked to remove the test pressure from the certification string. The Working Group promised to review this and report back as soon as possible.

15. The expert from Canada expressed concern that working pressure would not be required as a mandatory marking on all pressure receptacles.

16. It was agreed not to include the tare for compressed or liquefied gases because it can vary according to the accessories used and would then require re-stamping. The tare, and other markings needed for operational reasons, however, may be marked if they do not conflict with the required markings.

17. The Working Group decided that the tare to be indicated for acetylene, dissolved, UN No. 1001, had to include the saturation gas (S-TARE).

Pressure relief devices (PRDs)

18. The delegates expressed their views on the use of PRDs. It was recognised that the use of PRDs cannot be dissociated from different practices in the national markets and the national regulatory environment.

19. The previous agreement on prohibiting the use of PRDs on toxic gases with an $LC_{50}$ lower than or equal to 200 $ml/m^3$ and the compulsory use on $CO_2$ and $N_2O$ was confirmed.

20. A compromise was reached that consisted in maintaining the prerogative of the competent authority of the country of use to require the fitting of pressure relief devices to pressure receptacles.

21. The expert from the United States of America announced that he will be commissioning a university to undertake risk analysis work on the use PRDs.

22. CGA and EIGA will maintain close contact to foster world-wide harmonization in the use of PRDs.

23. The expert from the United Kingdom proposed to contribute to further studies and invited collaboration by other countries to develop joint research programmes. The expert from the United States of America welcomed this and indicated that he was already exchanging information with experts in Germany and Canada.

General Packing Instructions and P200

24. The expert from the United States of America sought clarification on the determination of the filling ratios. CGA explained that they had been using different formulas and the tables published by the National Institute for Science and Technology (NIST) in the United States of America and that until now only a few discrepancies with the proposed values had been found. The expert from Germany explained that most of the ADR/RID values as proposed in the paper

were also based on the NIST and on experimental values performed by the PTB (Physikalisch Technische Bundesanstalt) of Germany.

25. It was agreed between the expert from Germany and the representative of CGA that close collaboration in comparing values would lead to mutually agreed upon data for inclusion in the final table.

26. The table to be proposed to the December meeting would still have some square brackets for certain filling ratios since this is a major task. It was also agreed that in case of discrepancy between the two sources, the more conservative filling ratio would be used. It is anticipated that almost all of these square brackets would be lifted before the December session. Should the work not be finalized, the table would contain blanks, automatically entailing the use of the very conservative formulae provided for in P 200 for gases with insufficient data.

27. The expert from the United States of America proposed the adoption of additional limiting factors for toxic gases in document ST/SG/AC.10/C.3/2000/51 which would reduce the pressure receptacle content according to the degree of toxicity of the gas. Although this proposal was questioned by some members, it was agreed that the representative of CGA and the expert from Germany would factor this proposal into their work by systematically reducing the filling ratio.

28. The representative of CGA agreed to incorporate additional filling ratios for high pressure liquefied gases to address pressure receptacles designed for test pressures other than those currently listed such as those used in North America.

29. The representative of CGA agreed to cross check the $LC_{50}$ values in the ISO 10298 and the Department of Transportation (DOT) listing and agree on values to be included for the December session.

30. A number of special requirements were deemed redundant and deleted. Additional special requirements were added. The representative of EIGA proposed to put them into a logical order.

31. The expert from the United States of America will verify that the restrictions on the use of aluminium alloy cylinders as indicated by the special requirements based on ISO 11114-1 fit the current DOT restrictions.

32. Additional restrictions on the use of aluminium alloy pressure receptacles for oxygen were adopted.

33. It was agreed for toxic gases with an $LC_{50} \leq 200$ ml/m$^3$ cylinders would:

(a) Be limited to a maximum water capacity of 85 litres;

(b) Have a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel or otherwise be overpacked in a packaging meeting the Packing Group I performance level.

34. The extension of the periodicity of testing LPG cylinders to fifteen years was made conditional on the agreement of the competent authority in the country of use.

35. A number of restrictions on the use of non refillable receptacles were adopted as follows;

(a) Flammable gases to be limited to a maximum water capacity of one litre;

(b) Not allowed for toxic gases with an $LC_{50} \leq 200$ ml/m$^3$;

(c) All should be overpacked;

(d) No repairs are allowed after they have been taken into service.

36. It was agreed to group together all the requirements for acetylene, dissolved and solvent free. Likewise all special requirements of toxic gases would be grouped together.

37. The table would be split into three parts, one for compressed gases, one for liquefied and dissolved gases and a third one for liquids assigned to P 200. Additional elements to appear in the table are the primary and subsidiary hazards and the $LC_{50}$ values. The provisions for liquids will have to be provided by the interested parties.

38. A significant number of editorial changes from the expert from Canada and other participants were adopted.

39. The requirements applicable to pressure receptacles which are not UN marked were revised to incorporate burst ratios more in line with pressure receptacles used in North America and other parts of the world. It was clarified that these receptacles would not bear the UN mark.

Proposals delegated by the Plenary Meeting

40. Proposal ST/SG/AC.10/C.3/2000/37 from Italy concerning refrigerant gases was accepted.

41. Informal document INF.30 from the expert from Germany concerning acetylene, solvent free was accepted with minor amendments including limiting the copper content of valves to 65% and referral to the latest ISO standards 3807-1 and -2. The secretariat is requested to allocate a UN number for acetylene, solvent free.

**Conclusions**

42. A lively debate about the way to proceed further lead to the compromise that a firm proposal would be presented to the December session for inclusion into the Model Regulations. Proposal 1 on Definitions, Proposal 2 on Definitions and General Provisions and Proposal 5 for Part 5 were deemed to be final.

43. Proposal 3 on the Special Packing Provisions, Proposal 4 on Construction and Testing and Proposals 6 and 7 on MEGCs would have to be included with the proviso that they should not be considered for immediate adoption into modal and national regulations.

* * * * *

## Annex 2

**Draft amendments to the Model Regulations on the Transport of Dangerous Goods (Texts adopted by the Sub-Committee)**

**(Refer to ST/SG/AC.10/C.3/36/Add.1)**

## Annex 3

## Report of the Working Group on Ammonium Nitrate Emulsions.

1. Representatives of Australia, Canada, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States of America, Federation of European Explosives Manufacturers (FEEM), Hazardous Materials Advisory Council (HMAC), Institute of Makers of Explosives (IME) and International Society of Explosives Engineers (ISEE) participated in the Working Group meeting.

2. The discussion was based on the following documents:

- ST/SG/AC.10/C.3/2000/21
- INF.47
- and conference room papers from France (results of DDT tests and Current Regulations in France) and Canada (both on test methods and results)

3. The Working Group discussed the issue in square brackets, the vents' size in case of metal tanks. Some experts questioned the technical basis of the actual value given. It was decided to keep the square brackets for the time being; pending further input to the Committee meeting and consequential removing of the brackets or adjustment of the value.

4. The Working Group identified an error in document ST/SG/AC.10/C.3/2000/21; page 6, the flow chart. The "Yes" and "No" to the box "Is the substance thermally stable?" should be interchanged.

5. The issues raised in INF.47 served as a basis for the further discussion. It was decided to change figure 10.2 according to the proposal given in INF.47, Annex I. This means that a candidate for Ammonium Nitrate Emulsions, intermediate for blasting explosives (ANE) is first subjected to Test Series 3 before applying Test Series 8.

6. The thermal stability test was discussed next. It was questioned if the proposed test was applicable to this group of substances, particularly since the transport temperature may be higher than the temperature range covered by the 75° C test. The representatives of United Kingdom and Canada suggested that this test is replaced by a Dewar type test, for instance similar to Test H.4 of the Manual of Tests and Criteria. This led to many discussions, but in the end it was agreed to include a reference to a modified H.4 test in square brackets, pending the availability of examples of results from this test with ANE.

7. The reservations raised by the representative of the United Kingdom concerning the 8(b) test (cap sensitivity) was discussed next. In this context the expert from France introduced his paper with results of the modified USA DDT test, concluding that this test was not able to distinguish between a sensitised and a non sensitised emulsion. He therefore proposed to use a version of the EIDS Gap Test (7(b)) instead to assess the detonative properties. This would also solve the reservations of the United Kingdom on the cap sensitivity test. The Working Group

provisionally accepted (in square brackets) the French proposal to replace both the cap sensitivity test and the modified USA DDT test with a version of the EIDS Gap Test, also pending further test results.

8. Several experts questioned the use of the modified USA Vented Pipe Test, both due to the limited possibility of performing the test in many countries, as well as the ability of the test to extrapolate the test results to the vent capacity of large steel tanks. However, since no other tests addressing the same safety properties are available it was decided to leave the test in, pending further details of the test and test results.

9. No change was made to the packaging and tank provisions since the United Kingdom comments on this were mainly based on the assumed distinction between emulsions in the solid and in the liquid state. After hearing these arguments, the expert from the United Kingdom did not pursue the issue, but may come back to it at a later stage.

10. The expert from the United States of America regretted the changes made to the document that had come out of the fruitful discussions in Norway. In his opinion, the technical arguments and test data supporting these changes were lacking.

11. A revised document will be presented to the Committee meeting in December 2000. It was the opinion of the Working Group that there is an urgent need for internationally agreed conditions for the transportation of these substances, since they are being transported in large amounts around the world, with various classifications and conditions for transport.

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## Annex 4

## Report of the United Nations/ILO Working Group on the Harmonization of the Classification Criteria for Physical Hazards

1. The United Nations/ILO Working Group on the Harmonization of Classification Criteria for Physical Hazards met on 10 July 2000 under the chairmanship of Mr. G. Oberreuter (Germany).

2. The representatives of the following countries and organizations took part in this session of the Working Group: Australia; Austria; Belgium; Brazil; Canada; China; Czech Republic; Finland; France; Germany; Islamic Republic of Iran; Italy; Japan; Mexico; Morocco Netherlands; Norway; Russian Federation; South Africa; Spain; Sweden; Switzerland; United Kingdom; United States of America; European Commission (EC); Chemicals Specialities Manufacturers Association (CSMA); Federation of European Aerosol Associations (FEA); Hazardous Materials Advisory Council (HMAC); International Civil Aviation Organization (ICAO); International Council of Chemical Associations (ICCA); International Maritime Organization (IMO).

Document : ST/SG/AC.10/C.3/34, annex 5 (Report of the Working Group on its session held during the 17th session of the Sub-Committee)

Informal document : INF.61 (Germany)

3. The Working Group resumed its discussions on criteria for classification of aerosols which could not be concluded at the last session in accordance with the guidance provided by the Chairman in INF.61 on the basis of the new documentation submitted:

Documents: ST/SG/AC.10/C.3/2000/34 (FEA/CSMA)
ST/SG/AC.10/C.3/2000/46 (United States of America)
ST/SG/AC.10/C.3/2000/49 and -/Add.1 (CSMA)

Informal documents : INF.7, INF.12, INF.15 and INF.16 (FEA)
INF.28 (France)
INF.42 (United States of America)
INF.46 (CSMA)

4. The results obtained so far were as follows:

(a) A definition for aerosols is available (ST/SG/AC.10/C.3/28/Add.3, annex, para. 3.4);

(b) aerosols should be considered for classification as flammable if they contain any flammable component which is classified as flammable according to the GHS criteria, i.e.:

- flammable liquids (flashpoint ≤ 93 °C)
  (see ST/SG/AC.10/C.3/28, annex, para. 3.1)
- flammable solids
  (see ST/SG/AC.10/C.3/28, annex, para. 3.2)
- flammable gases and gas mixtures
  (see ST/SG/AC.10/C.3/28/Add.3, annex, para. 3.3)

(c) the test regime for flammability of aerosols should consist of three tests (ignition distance test, Enclosed space test, Foam test) and aerosols should be classified as flammable if any of the tests give a positive result.

5. With respect to para. 4(b) above, the Working Group agreed that the designation "any flammable components" did not cover pyrophoric, self-heating or water-reactive substances, because according to representatives of the aerosol industry, such components are never used as aerosol contents.

6. For the hazard levels, certain delegations considered that there should be only one hazard level (i.e. non-flammable/flammable). Others considered that there should be two hazard levels (Extremely flammable/flammable), and others three hazard levels (Extremely flammable/easily flammable/flammable). No agreement could be reached in that respect, and it was decided to concentrate first on criteria to determine whether or not aerosols should be considered as flammable.

7. The Working Group agreed that aerosols containing less than 1% flammable components should be considered as non flammable.

8. For the test methods, the Working Group agreed that aerosols containing 1% or more of flammable components should be tested in the position in which the dispenser is designed to be used, and if the test results were negative, an additional test should be carried out in the position of the dispenser most likely to result in a positive result. Some delegations felt that the requirement to conduct the test in the additional orientation should only apply in the case of the ignition distance test.

9. The Working Group confirmed that the three tests (ignition distance test, enclosed space test, foam test) were relevant.

10. For the foam test, it was agreed that the criterion should be a stable flame of 4 cm height for not less than 2 seconds.

11. For the ignition distance test, it was agreed that the criterion should be ignition at a distance comprised between 15 and 90 cm.

12. For the enclosed space ignition test, it was agreed that the cut-off limit of 150 $s/m^3$ as time equivalent needed to achieve ignition in one cubic metre could be adopted.

13. In INF.12, FEA proposed that a deflagration density of 600 g/m$^3$ should be used as a criterion in relation with the enclosed space ignition test, as according to the tests carried out no deflagration had been observed in enclosed spaces at higher densities.

14. The representative of the United States of America recalled that according to existing transport regulations, aerosols were considered as flammable only when the total amount of flammable material was more than 45% by mass, and he could not support the value of 600 g/m$^3$ for the deflagration density as this corresponded to an amount of 10% by mass according to INF.12.

15. The representative of CSMA said that the proposal from FEA would imply classification of most aerosols as flammable. He said that extensive testing had been carried out by the aerosol industry in the United States of America and that according to these tests, which had been validated by the National Fire Protection Agency, there would be no justification to consider aerosols with such low amount of flammable components as presenting a risk of flammability beyond that of ordinary combustible substances. Furthermore he noted that to obtain deflagration density of 600g/m$^3$, it would be necessary to discharge an aerosol dispensers for at least three minutes, and such a long time of discharge in a confined space was not likely to occur in normal use conditions.

16. Other delegations felt that accumulation of explosive atmospheres in confined spaces was not unlikely to occur in transport or storage conditions, for example discharge due to valve defect or to a vehicle accident, inside a closed container or vehicle, in holds of ships or in tunnels, and in such conditions, even if the aerosols were not involved in a fire there could be various sources of ignition, such as sparks, etc.

17. It was recalled that the existing limit of 45% of flammable contents in the Model Regulations for the Transport of Dangerous Goods had been questioned by the Committee of Experts on the Transport of Dangerous Goods and it had been agreed that it should be reviewed.

18. The representative of France said that CSMA should provide more information about the tests carried out by the aerosol industry in the United States of America, because the test data provided by FEA showed that aerosols with flammable contents of less than 45% could lead to explosion in case of release in an enclosed space, and bonfire tests similar to test 6 (c) carried out in his country on pallets of aerosols with low flammable contents showed that in a fire situation such aerosols had the same behaviour as certain explosives. In addition he explained that the deflagration density was not related to the enclosed space discharge test but simply measured while performing this test, in order to avoid multiple testing.

19. The representative of the United States of America suggested that the time equivalent criterion would be sufficient as a criterion for both transport and supply and use, and proposed not to adopt a deflagration density criterion.

20. As there was no consensus on this criterion and on other issues, the Working Group could not conclude its discussions and another session would be necessary to decide whether a deflagration density criterion is necessary and for addressing the question of hazard levels.